

## REMARKS

### A. 35 U.S.C. § 112, Second Paragraph

In the Office Action of January 23, 2006, claims 8, 21 and 26 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite in meaning. Regarding claims 21 and 26, the claims have been canceled and so the rejections have been rendered moot. Regarding claim 8, it was rejected because there was no antecedent basis for the terms “the wire bond” and “the external connector pad.” Claim 8 has been amended so as to depend from new claim 47. Since there is proper antecedent basis for the terms, the rejection has been overcome and should be withdrawn.

The amendment of claim 8 is being made to correct a typographical error in that original claim 7 should have obviously depended from claim 6 instead of claim 1. The present amendment of claim 8 and the presentation of claim 47 correct this error. Accordingly, the amendment of claim 8 and new claim 47 are not being made for reasons of patentability as defined in *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd*, 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000) (*en banc*), *overruled in part*, 535 U.S. 722, (2002).

### B. 35 U.S.C. § 102

Claims 15, 17, 20-22 and 24-26 were rejected under 35 U.S.C. § 102(e) as being anticipated by Chin et al. In view of the cancellation of claims 15, 17, 20-22 and 24-26, the rejection has been rendered moot and should be withdrawn.

### C. 35 U.S.C. § 103

#### 1. Chin et al.

Claims 18, 19 and 23 were rejected under 35 U.S.C. § 103 as being obvious in view of

Chin et al. In view of the cancellation of claims 18, 19 and 23, the rejection has been rendered moot and should be withdrawn.

2. **Chin et al. and Franklin et al.**

Claim 16 was rejected under 35 U.S.C. § 103 as being obvious in view of Chin et al. and Franklin et al. In view of the cancellation of claim 16, the rejection has been rendered moot and should be withdrawn.

3. **Okumura et al. and Chin et al.**

Claims 1 and 3-14 were rejected under 35 U.S.C. § 103 as being obvious in view of Okumura et al. and Chin et al. Applicants traverse the rejection. In particular, independent claim 1 recites a positional encoder assembly that includes both a lead frame and a circuit board assembly “wherein the lead frame is disposed on the circuit board assembly such that the sensor is disposed at a predetermined elevation with respect to the circuit board assembly.” The Office Action has conceded that Okumura et al. does not disclose either a lead frame or a circuit board assembly. The Office Action asserts that Chin et al. disclose both a lead frame and a circuit board and so it would have been obvious to use Chin et al.’s lead frame and circuit board in Okumura et al.’s device. Applicants disagree with the assertion. The Office Action has relied on the following passage of Chin et al. as disclosing the recited lead frame and circuit board:

The substrate used may be a leadframe, an insert-molded leadframe, a double-sided printed circuit board (PCB), a ceramic substrate or a micro-interconnected device (MID) wherein the optical emitter and the optical detector can be mounted on both the first surface, for example a top surface, and the second surface, for example a bottom surface, of the substrate. A flat substrate is preferred as it gives a more compact design of the dual-axis optical encoder device according to the invention. Therefore, a leadframe is used as the substrate in the preferred embodiment of the invention, as it is slimmer compared to the other types of

substrates, resulting in a smaller and more compact dual-axis optical encoder device. A leadframe substrate is also less expensive compared to the other types of substrate. (Paragraph 0014).

The first sentence of the above passage clearly states that “[t]he substrate used may be a leadframe, an insert-molded leadframe, a double-sided printed circuit board (PCB), a ceramic substrate or a micro-interconnected device (MID)” (emphasis added). The use of the word “or” clearly means that Chin et al. only contemplated using either a leadframe or a printed circuit board, not both. The fact that Chin et al. does not disclose using a lead frame in combination with a circuit board assembly is confirmed by Chin et al.’s statement that “[t]he substrate may be a leadframe, an insert-molded leadframe, a double-side PCB, a ceramic substrate or a micro-interconnecting device, wherein an optical encoder can be mounted on each side” (emphasis added, Paragraph 0034).

Chin et al. also does not suggest combining a lead frame with a circuit board assembly since Chin et al. prefers a flat substrate, such as a lead frame, since “it gives a more compact design” (Paragraphs 0014 and 0034). Since disposing a lead frame on a circuit board assembly would make the device less compact, there is a teaching away from the claimed invention and so claim 1 should be deemed patentable over the combination of Okumura et al. and Chin et al.

#### **4. Okumura et al., Chin et al. and Franklin et al.**

Claim 2 was rejected under 35 U.S.C. § 103 as being obvious in view of Okumura et al., Chin et al. and Franklin et al. Claim 2 depends directly on claim 1. As pointed above in Section C.3, there is no motivation in Chin et al. to alter Okumura et al. to dispose a lead frame on a circuit board assembly. Since there is no motivation in Franklin et al. to alter Okumura et al. to

have a lead frame disposed on a circuit board assembly, the rejection is improper and should be withdrawn.

5. **Chin et al. and Okumura et al.**

a. **Claims 27, 28, 30-36 and 46**

Claims 27, 28, 30-36 and 46 were rejected under 35 U.S.C. § 103 as being obvious in view of Chin et al. and Okumura et al. Applicants traverse the rejection. In particular, independent claim 27 recites a positional encoder assembly that includes a lead frame supported upon a circuit board assembly. The Office Action asserts that it would have been obvious to alter Chin et al. “to connect the leadframe to the circuit board.” However, this assertion implies that Chin et al. discloses that its device uses both a leadframe and a circuit board. As pointed out above in Section C.3, Chin et al. does not disclose using both. Indeed, Chin et al. suggests the contrary since combining both would lead to a device which is less compact than using a lead frame or a circuit board alone. Since Okumura et al. does not suggest altering Chin et al. to have a lead frame supported upon a circuit board assembly, the rejection is improper and should be withdrawn.

b. **Claims 37, 38 and 40-45**

Claims 37, 38 and 40-45 were rejected under 35 U.S.C. § 103 as being obvious in view of Chin et al. and Okumura et al. Applicants traverse the rejection. In particular, independent claim 37 recites a positional encoder assembly that includes a lead frame supported upon a circuit board assembly. As pointed out above in Section C.5.a, neither Chin et al. nor Okumura et al. suggest altering Chin et al. to have a lead frame supported upon a circuit board assembly. Without such suggestion, the rejection is improper and should be withdrawn.

**6. Chin et al., Okumura et al. and Franklin et al.**

**a. Claim 29**

Claim 29 was rejected under 35 U.S.C. § 103 as being obvious in view of Chin et al., Okumura et al. and Franklin et al. Claim 29 depends directly on claim 27. As pointed above in Section C.5.a, there is no motivation in either Chin et al. or Okumura et al. to alter Chin et al. to have a lead frame supported upon a circuit board assembly. Franklin et al. also does not suggest altering Chin et al. to have a lead frame supported upon a circuit board assembly. Without such suggestion, the rejection is improper and should be withdrawn.

**b. Claim 39**

Claim 39 was rejected under 35 U.S.C. § 103 as being obvious in view of Chin et al., Okumura et al. and Franklin et al. Claim 39 depends directly on claim 37. As pointed above in Section C.5.b, there is no motivation in either Chin et al. or Okumura et al. to alter Chin et al. to have a lead frame supported upon a circuit board assembly. Franklin et al. also does not suggest altering Chin et al. to have a lead frame supported upon a circuit board assembly. Without such suggestion, the rejection is improper and should be withdrawn.

**CONCLUSION**

In view of the arguments above, Applicants respectfully submit that all of the pending claims 1-14 and 27-47 are in condition for allowance and seek an early allowance thereof. If for any reason, the Examiner is unable to allow the application in the next Office Action and

believes that an interview would be helpful to resolve any remaining issues, she is respectfully requested to contact the undersigned attorneys at (312) 321-4200.

Respectfully submitted,



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